

Sub A2

WHAT IS CLAIMED IS:

1. A DFB type semiconductor laser device comprising a laser substrate, a grating layer, an insulating layer and an electrode layer are laminated in order, the insulating layer including at least one through groove extending to the grating layer in a direction in which a resonator of the laser device is formed, the electrode layer contacting the grating layer and the clad layer.

Sub A2

2. The DFB type semiconductor laser device according to claim 1, wherein the laser substrate comprises a waveguide layer composed of at least InGaAsP and a clad layer composed of p-InP, and the grating layer is composed of InGaAs.

Sub A3

3. The DFB type semiconductor laser device according to claim 2, wherein the clad layer has a maximum thickness of substantially 0.5 μ m.

Sub C1

4. A method of manufacturing a DFB type semiconductor laser device, comprising the steps of forming a laser substrate including at least a waveguide layer and a clad layer; forming a grating layer on a top surface of the laser substrate; forming an insulating layer having at least one through groove extending to the grating layer in a direction in which a resonator of the laser device is formed; forming an electrode layer made of a high refractive material on the insulating layer; and forming a further electrode layer on a bottom surface of the laser substrate.

5. The method according to claim 4, wherein the step of forming the grating layer comprises the steps of forming a contact layer on the clad layer of the laser substrate, and removing a portion of the contact layer by lithography to form a plurality of parallel ridges aligning in parallel to one another in the direction in which the resonator of the laser device is formed.

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